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ABSTRACT

Ways the education and training of information professionals can adapt to the rapidly changing information environment are addressed in this paper, which describes a project undertaken by King Research ("New Directions in Library and Information Science Education") to identify current and future competency requirements of librarians and other information professionals. It is hypothesized that a lack of communication between the employers of information professionals and the institutions that educate and train them is one reason that educational institutions are not meeting needs and demands of the changing environment and new technologies. Following a list of preliminary questions that need to be addressed in determining information professionals' training needs, the project approach and framework are described. Each aspect of this framework is then detailed, including trends which affect library and information science organizations, work settings, and the functions and activities performed. Also considered are the types of users served, the tools and techniques used/applied, and the types of materials handled. Finally, each step in the overall process of planning, design, implementation, and evaluation is examined. (LMM)

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COMPETENCY REQUIREMENTS FOR LIBRARY AND INFORMATION SCIENCE PROFESSIONALS

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One of the paradoxes of the phenomenal growth of the information community is that librarianship, one of the oldest and most respected of information professions, is experiencing great difficulties as a profession at a time when it should be experiencing its greatest growth. There are many hypotheses as to why this is happening. One is that the environment and new technologies are changing the patterns of distribution of work force and ways in which information is being communicated. There are many who feel that librarians as intermediaries will cease to exist. It is my contention that these changes will increase the importance of librarians, albeit in possible new roles in addition to their existing ones. Another hypothesis is that the changing environment and new technologies are not being fully met by educational institutions. A likely reason for these needs and demand not being fully met is a lack of communication between the employers of information professionals and the institutions that educate and train them.

The survey of information professionals conducted by the University of Pittsburgh and King Research and the work conducted to date on the project "New Directions in Library and Information Science Education" suggest that this lack of communication occurs because needed competencies

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are not well described, and library and information science schools and other education and training organizations are not communicating well with those who employ information professionals. The channels for communication of information concerning the changing demand for specific competencies are displayed in Figure 1.

There are several basic levels of communication which can clarify the changing requirements of the information science profession and in determining the most appropriate response for the education and training organizations. The entire communications process can be viewed as being driven by the technological, societal and other environmental changes. As these changes are continuous (sometimes fast, sometimes slow) so should the communications process be continuous and responsive. Unfortunately, this is rarely the case. The problem addressed by the remainder of this paper is how can the education and training of information professionals be made appropriate to the rapidly changing information environment so that professionals can perform their jobs effectively. In a rapidly changing environment the effects of the communications gap referred to above will become more severe.

In order to address this problem the following questions need to be considered:

1. What are the current major trends affecting the library and information environment? To what extent will the environment change in the future?

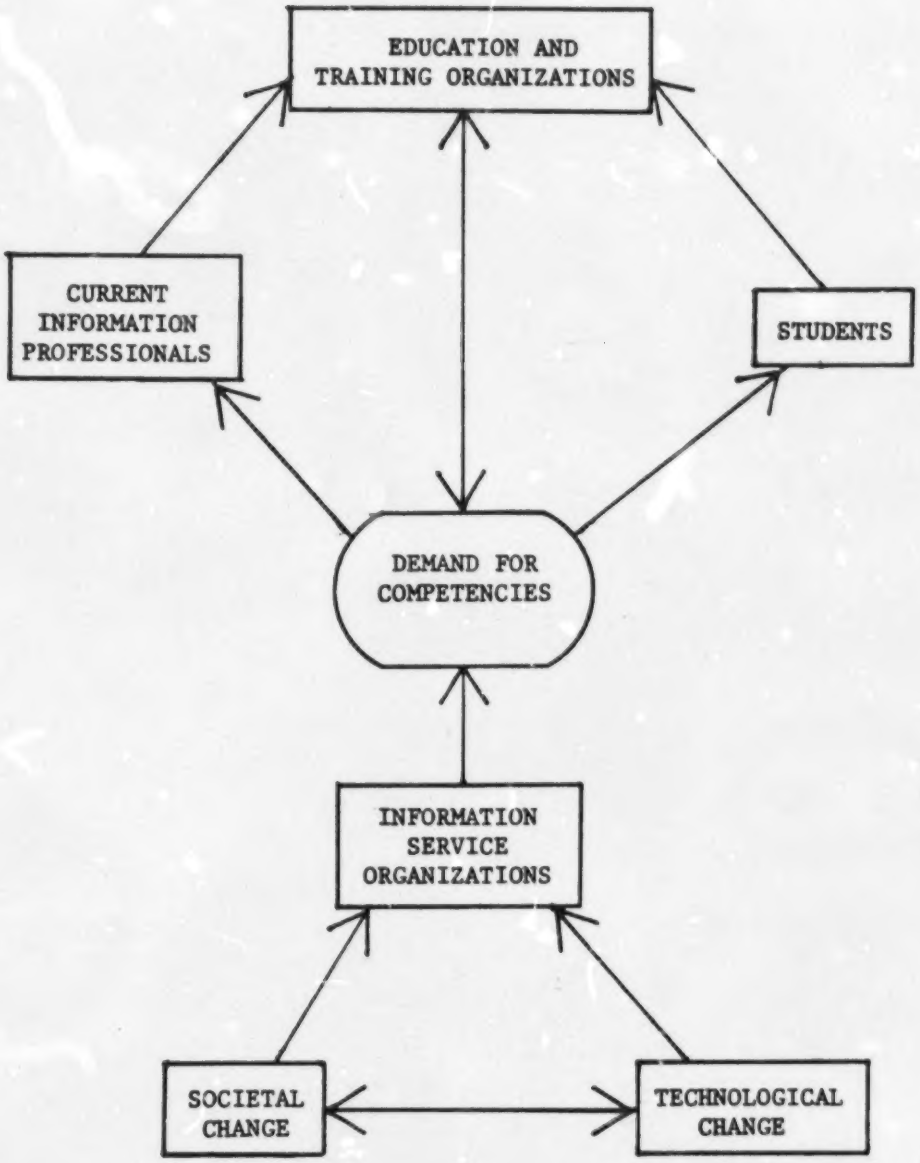

Figure 1 Current Communication Channels for Information Concerning Demand for Competencies

2. What do information professionals do? What functions and activities do they perform? Where do they work?

3. What aspects of the functions and activities performed by information professionals will change given the trends described above (question 1)?

4. What competencies are currently needed by information professionals to perform their functions and activities? What new competencies will be needed? Which competencies will become more prominant?

5. To what extent do information professionals currently possess the necessary competencies identified above (question 4)?

6. How can future competency needs be met?

In beginning to answer some of these questions, the U.S. Department of Education contracted with King Research, Inc. to identify current and future competency requirements of librarians and other information professionals.

The approach to the project taken by King Research is not to attempt an extensive forecast into future needs, but rather to initiate a process that will support the future planning of education and training programs for information professionals. The process will be concerned with both formal education as well as continuing education so that information professionals will be able to acquire appropriate and necessary competencies in a timely fashion as the external information environment changes.

The project framework (as it has been developed to date) describes trends which affect library and information science organizations, the work settings in which library and information professionals perform, and the functions and activities performed. Also considered are the types of users served, the tools and techniques used/applied, and the types of materials handled. Each of these dimensions serves to distinguish various sets of competencies.

Competencies are defined as comprising one or more of the following components:

- o Knowledge
  - of librarianship and information science
  - of specific subject areas (e.g., chemistry, law)
- o Skills
  - cognitive
  - analytical
  - technical
  - interpersonal
  - basic literacy/numeracy
- o Attitudes
  - towards the profession
  - motivational

Some of the major trends identified through literature and through interactions with information professionals are:

- o increases in availability of automated tools for storing, processing and retrieving information
- o increases in the volume and types of materials available
- o increases in networking and resource sharing activities
- o increases in the demand for information services
- o increases in the awareness and sophistication of information users.

This list is by no reason exhaustive but represents some of the major trends that affect information professional competency requirements. The exact nature of this relationship has yet to be determined.

In defining work settings an attempt was made to represent a range of settings within which information professionals will be found in the foreseeable future. A preliminary list of work settings includes:

- o libraries
- o information centers and clearinghouses
- o database producers
- o database distributors and services
- o special collections (e.g., museums) and archives

- o information analysis centers
- o information service companies (e.g., brokers, jobbers, consultants)
- o project support groups
- o records systems or centers

Broad functions performed by the library and information professionals have been defined across work settings. They are grouped under three general headings: user-oriented, technical and support. Conceptually, these subgroupings reflect the degree to which the activities performed within that function involve users. Thus, user-oriented functions involve direct interactions with users or activities performed in direct response to user requests. Technical functions involve the collection management aspects of a library or an information service which affect end-users only indirectly. Support functions include those additional functions which are necessary to perform user-oriented and technical functions but which may have little direct effect on end-users. For this project the importance of the functional groupings selected is their correspondence with types of competencies required. Within the functional groupings, further breakdowns have been established as listed below. An attempt was made to make the terminology of functions as generic as possible across the range of functions performed in a variety of work settings.

USER-ORIENTED FUNCTIONS

Needs Analysis

Searching

Retrieval

Analysis of Information

Dissemination

User Training

Program Presentation

TECHNICAL FUNCTIONS

- Creation & Recording
- Production
- Collection Development
- Description and Organization
- Storage and Maintenance
- Disposal/Weeding
- Recordkeeping

SUPPORT FUNCTIONS

- Administration
  - Management
  - Planning
  - Accounting & Finance
  - Policies & Procedures
  - Personnel and Staff Development
  - Facilities Management
  - Communications
- Marketing
- Systems Analysis & Design
- Research & Development

The development of this framework has helped to identify many different aspects of the information profession today, especially in defining its boundaries. In planning education and training programs for information professionals we have defined a total process, part of which has been described in some detail above. The overall planning process is shown in Figure 2.

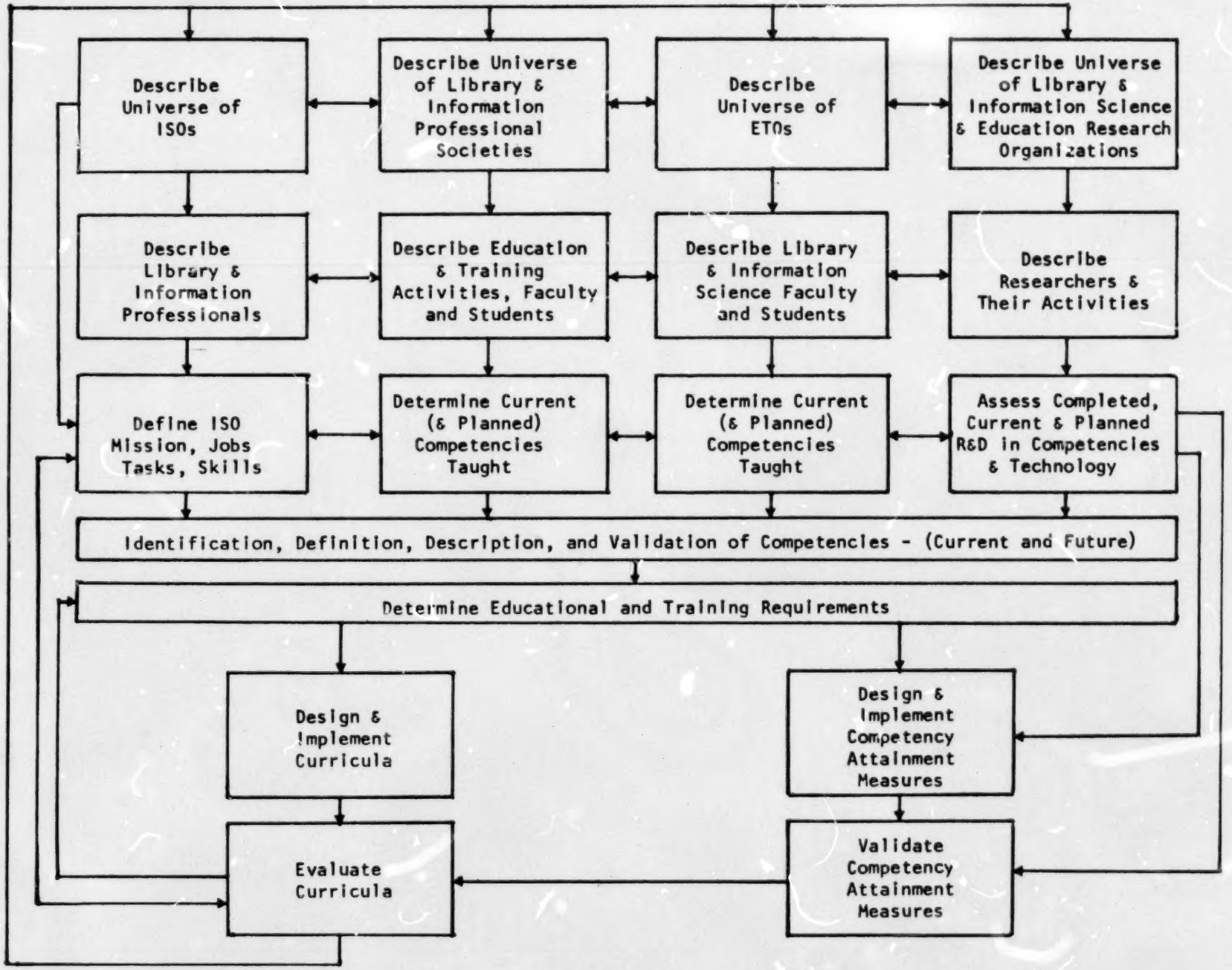
Describe Universe of ISOs
Describe Universe of Library & Information Professional Societies
Describe Universe of ETOs
Describe Universe of Library & Information Science & Education Research Organizations
Describe Library & Information Professionals
Describe Education & Training Activities, Faculty and Students
Describe Library & Information Science Faculty and Students
Describe Researchers & Their Activities
Define ISO Mission, Jobs Tasks, Skills
Determine Current (& Planned) Competencies Taught
Determine Current (& Planned) Competencies Taught
Assess Completed, Current & Planned R&D in Competencies & Technology
Identification, Definition, Description, and Validation of Competencies - (Current and Future)
Determine Educational and Training Requirements
Design & Implement Curricula
Design & Implement Competency Attainment Measures
Evaluate Curricula
Validate Competency Attainment Measures

Figure 2 A Planning Framework for Determining New Directions in Library and Information Science Education

The planning framework establishes an ongoing and timely feedback among information service organizations (ISOs), education and training organizations (ETOs), professional societies, the relevant information research community, and individuals within them. The first step in the planning cycle is to describe the universe of participating organizations (i.e., ISOs, ETOs, professional societies, and research organizations). The second step is to determine the population of library and information professionals who are or would be affected by new education and training curricula. Parallel to this step is the need to describe education and training activities as well as faculty and students involved in ETOs and professional societies. Also at this stage it is useful to describe current and planned research and development activities relating to competencies and establish the stimuli that might affect the competency requirements, such as new technology and societal change. The next step involves activities necessary to determine required competencies. These activities include (a) defining the ISO mission, information-related jobs, and skills necessary to perform these jobs; (b) determine current (and planned) competencies that are taught by ETOs and professional societies; and (c) assessing completed and current research and development in the areas of competencies, library and information science, technology and societal changes. At that point, the required competencies will be identified, defined, described and validated (the scope of the ongoing project).

The next step in the overall planning process will be to determine education and training requirements necessary to support the attainment of these competencies. After that is done, it will be necessary to design the curricula and implement them in test sites. In parallel, competency attainment measures based on education and training requirements and

knowledge of what has been found in competency research should be defined and implemented. The implemented curricula can then be evaluated in terms of the competency attainment measures. Such evaluation might lead to new and/or revised education and training requirements. Since much of the curricula evaluation will be in ISO sites, the results may also yield better definitions and determination of library and information professional jobs, tasks and skills. Finally, the evaluation should lead to updated descriptions of the universe of participants. The entire cycle is regenerative and should establish new competencies to reflect changes in the dynamic information environment. The overall process should allow for the most appropriate and timely formal and continuing education for information professionals rendering them more competent and, therefore, effective performers.